Serum endocan and Cathepsin G-cleaved endocan in adult patients with febrile neutropenia

Si-Hyun Kim[1,2], Won-Bok Kim[2], Sung-Yeon Cho[1,2], Dong-Gun Lee[1,2]

[1]Department of Internal Medicine and [2]Vaccine Bio Research Institute, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea

Introduction

Endocan is produced by the vascular endothelial cells and Cathepsin G (CG)-cleaved endocan is the specific product of cathepsin G proteolysis on endocan. Previous studies have shown that serum endocan levels increased in sepsis and are also related to the severity of sepsis. However, there are no clinical study about serum endocan and cathepsin G-cleaved endocan levels in adult patients with febrile neutropenia.

Aim

The aim of this study was to determine whether serum endocan and CG-cleaved endocan levels within 24 hours of onset of fever is associated with septic shock and mortality in adult patients with febrile neutropenia.

Methods

In a prospective study,

- We collected serum sample for endocan and cathepsin G-cleaved endocan levels within 24 hours of the onset of fever in patients with neutropenia.
- All patients had hematologic malignancies.
- Neutropenia was defined as an absolute neutrophil count of <500 cells/mm^3.
- The endocan and cathepsin G-cleaved endocan levels were assayed with the Combined Human Endocan and Cathepsin G-cleaved Endocan DIYEK C1 kit (Lunginnov, Lille, France).
- Data were expressed as mean±standard deviation (SD).

Results

The total of 33 adult patients with febrile neutropenia have been enrolled.

- Male and female patients were 15 (45%) and 18 (55%), respectively.
- The mean age was 52±14 years (range, 18-70 years).
- Of the febrile neutropenic patients, 21 (64%) were diagnosed as acute myeloid leukemia, 8 (24%) as acute lymphocytic leukemia, 1 (3%) as chronic myeloid leukemia (blast crisis), 1 (3%) as multiple myeloma, 1 (3%) as myeloid dysplastic syndrome, and 1 (3%) as lymphoma.
- Neutropenia was induced by intensive chemotherapy in 26 (79%) patients and by stem cell transplantation in 5 (15%) patients.
- The mean duration of neutropenia was 21±17 days.
- Bacteremia occurred in 27 (82%) patients (8 with Gram-positive, 13 with Gram-negative, and 6 with two or more bacteria. However, serum endocan (2.50±2.61 ng/mL vs. 0.83±0.60 ng/mL; *P*=0.207) and cathepsin G-cleaved endocan levels (0.51±0.65 ng/mL vs. 0.09±0.10 ng/mL; *P*=0.199) did not differ significantly between patients with and without bacteremia.
- Septic shock developed in 6 (18%) patients. Serum endocan levels were not different in patients with septic shock (2.47±1.67 ng/mL) compared to patients without septic shock (2.14±2.62 ng/mL; *P*=0.253). However, cathepsin G-cleaved endocan levels tended to be

Results (cont')

higher in patients with septic shock (0.66±0.55 vs. 0.39±0.62; *P*=0.111).

- In-hospital mortality was seen in 3 (9%) patients. Serum endocan levels were not different in patients who died in hospital (2.59±1.19 ng/mL) compared to patients who survived (2.16±2.62 ng/mL; *P*=0.247). However, cathepsin G-cleaved endocan levels tended to be higher in patients with in-hospital death (0.76±0.61 vs. 0.40±0.61; *P*=0.104).

Conclusions

The results suggest that serum cathepsin G-cleaved endocan levels could be a useful biomarker for septic shock and mortality in adult patients with febrile neutropenia. However, there is a need for further large-scale, well-designed studies.

References

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